CLAIMS

What is claimed is:

1. A polymeric composition for coating an implantable device comprising a polysulfone (A) and an elastomeric polymer (B).

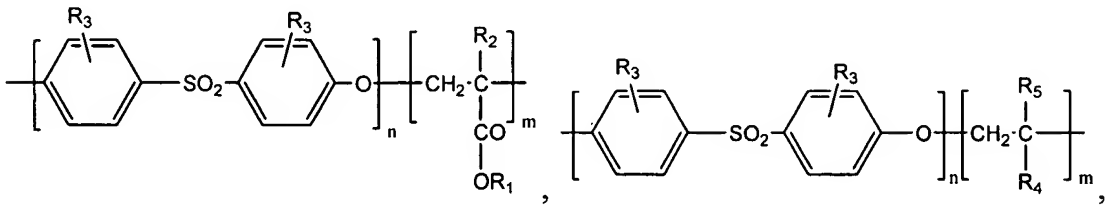
2. The polymeric composition of claim 1 wherein the elastomeric polymer is selected from the group consisting of polyacrylate with long side chain, polymethacrylate with long side chain, polyisobutylene, polyhexafluoropentene, polysiloxane, and a combination thereof.

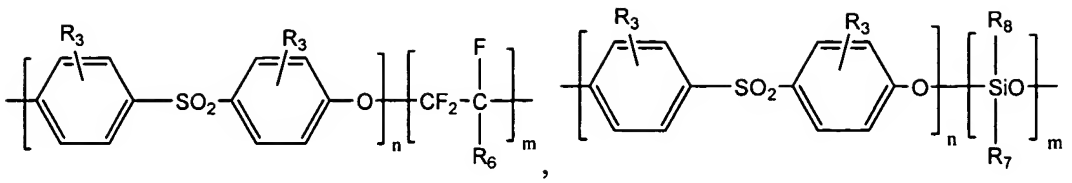
3. The polymeric composition of claim 1 wherein the polysulfone and the elastomeric polymer form a conjugate.

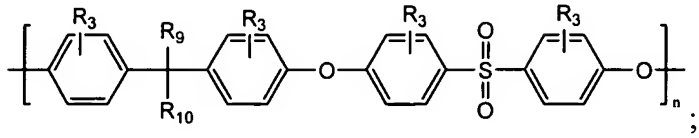
4. The polymeric composition of claim 1 wherein the polysulfone and the elastomeric polymer form a polymer blend.

5. The polymeric composition of claim 3 wherein the conjugate comprises a copolymer that comprises at least one block of a polysulfone polymer (A) and at least one block of an elastomeric polymer (B) in a general formula such as AB, ABA or BAB.

6. The polymeric composition of claim 5 wherein the block copolymer is selected from the group consisting of







and ;

wherein R_1 is selected from the group consisting of C1 to C10 alkyl, C2, C4 and C6 hydroxyalkyl, C1 to C6 fluoroalkyl, phenyl, substituted phenyl, polyethylene glycol, polyalkylene oxide, ethylene oxide and propylene oxide;

wherein R_2, R_4, R_5, R_7 and R_8 are independently selected from the group consisting of hydrogen, C1 to C6 alkyl, C2, C4 and C6 hydroxyalkyl, C1 to C6 fluoroalkyl, phenyl, substituted phenyl, carboxyl, amido, ester groups bearing a polyethylene glycol, and polyalkylene oxide;

wherein R_3 is selected from the group consisting of hydrogen, alkyl, cycloalkyl, phenyl, carboxyl, halo, amino, hydroxyl, amido, sulfido, and polyalkylene oxide;

wherein R_6 is a perfluoroalkyl group;

wherein R_9 and R_{10} are independently selected from the group consisting of H, CH_3, F and CF_3; and

wherein n and m are independently positive integers.

7. The composition of claim 5 wherein R_1 is butyl, isobutyl or isopropyl;

wherein R_2 is hydrogen or methyl;

wherein R_3 is hydrogen, halo, or methyl;

wherein R_4 and R_5 are independently hydrogen, methyl, ethyl, isopropyl, butyl,

isobutyl, or phenyl;

wherein R_6 is F, CF_3, CF_2CF_3, $CF_2CF_2CF_3$, perfluoroisopropyl, perfluorobutyl or perfluoroisobutyl; and

wherein R_7 and R_8 are independently methyl, ethyl, propyl, isopropyl, butyl, or isobutyl group.

8. The composition of claim 6 wherein R_1 is butyl;

wherein R_2 is methyl;

wherein R_3 is hydrogen;

wherein R_4 and R_5 are methyl groups;

wherein R_6 is CF_3;

wherein R_7 and R_8 are methyl group; and

wherein R_9 and R_{10} are methyl groups.

9. The coating composition of any of claims 1-8, further comprising a bioactive agent.

10. The coating composition of claim 9, wherein the bioactive agent is selected from the group consisting of tacrolimus, dexamethasone, rapamycin, Everolimus, 40-O-(3-hydroxy)propyl-rapamycin, 40-O-[2-(2-hydroxy)ethoxy]ethyl-rapamycin, and 40-O-tetrazole-rapamycin, sirolimus, sirolimus derivatives, paclitaxel, taxoids, estradiol, steroidal anti-inflammatory agents, antibiotics, nitric oxide donors, super oxide dismutases, super oxide dismutase mimics, 4-amino-2,2,6,6-tetramethylpiperidine-1-oxyl (4-amino-TEMPO), and a combination thereof.

11. An implantable device comprising a coating, which comprises a

composition as defined in any of claims 1-8.

12. The implantable device of claim 11 which is a stent.

13. A drug-eluting stent (DES) comprising a coating which comprises the composition of claim 9.

14. The drug-eluting stent of claim 13 wherein the bioactive agent is selected from the group consisting of tacrolimus, dexamethasone, rapamycin, Everolimus, 40-O-(3-hydroxy)propyl-rapamycin, 40-O-[2-(2-hydroxy)ethoxy]ethyl-rapamycin, and 40-O-tetrazole-rapamycin, sirolimus, sirolimus derivatives, paclitaxel, taxoids, estradiol, steroidal anti-inflammatory agents, antibiotics, nitric oxide donors, super oxide dismutases, super oxide dismutase mimics, 4-amino-2,2,6,6-tetramethylpiperidine-1-oxyl (4-amino-TEMPO), and a combination thereof.

15. A method of forming an implantable device, comprising

forming a coating on the implantable device comprising a composition as defined in any of claims 1-8.

16. The method of claim 15 wherein the implantable device is a stent.

17. A method of forming a DES, comprising

forming a coating on the DES comprising the composition of claim 9.

18. The method of claim 17 wherein the bioactive agent is selected from the group consisting of tacrolimus, dexamethasone, rapamycin, Everolimus, 40-O-(3-hydroxy)propyl-rapamycin, 40-O-[2-(2-hydroxy)ethoxy]ethyl-rapamycin, and 40-O-tetrazole-rapamycin, sirolimus, sirolimus derivatives, paclitaxel, taxoids, estradiol, steroidal anti-inflammatory agents, antibiotics, nitric oxide donors, super oxide

dismutases, super oxide dismutase mimics, 4-amino-2,2,6,6-tetramethylpiperidine-1-oxyl (4-amino-TEMPO), and a combination thereof.

19. A method of treating a disorder in a patient comprising implanting in the patient the implantable device of claim 11.

20. The method of claim 19 wherein the implantable device is a stent.

21. A method of treating a disorder in a patient comprising implanting in the patient the DES of claim 13.

22. The method of claim 21 wherein the bioactive agent is selected from the group consisting of tacrolimus, dexamethasone, rapamycin, Everolimus, 40-O-(3-hydroxy)propyl-rapamycin, 40-O-[2-(2-hydroxy)ethoxy]ethyl-rapamycin, and 40-O-tetrazole-rapamycin, sirolimus, sirolimus derivatives, paclitaxel, taxoids, estradiol, steroidal anti-inflammatory agents, antibiotics, nitric oxide donors, super oxide dismutases, super oxide dismutase mimics, 4-amino-2,2,6,6-tetramethylpiperidine-1-oxyl (4-amino-TEMPO), and a combination thereof.

23. The method of claim 19 wherein the disorder is selected from the group consisting of stenosis, occlusions of the arterial vasculature, vulnerable plaques and a combination thereof, and a combination thereof.

24. The method of claim 20 wherein the disorder is selected from the group consisting of stenosis, occlusions of the arterial vasculature, vulnerable plaques and a combination thereof, and a combination thereof.

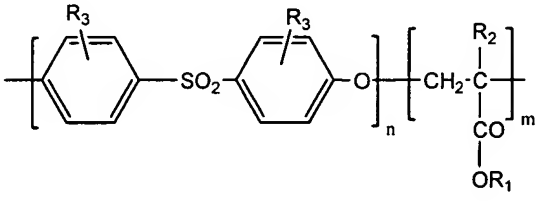
25. The method of claim 22 wherein the disorder is selected from the group consisting of stenosis, occlusions of the arterial vasculature, vulnerable plaques and a

combination thereof, and a combination thereof.

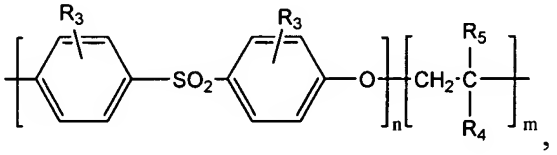
26. The method of claim 23 wherein the disorder is selected from the group consisting of stenosis, occlusions of the arterial vasculature, vulnerable plaques and a combination thereof, and a combination thereof.

27. A polymeric conjugate comprises a copolymer that comprises at least one block of a polysulfone polymer (A) and at least one block of an elastomeric polymer (B) in a general formula such as AB, ABA or BAB.

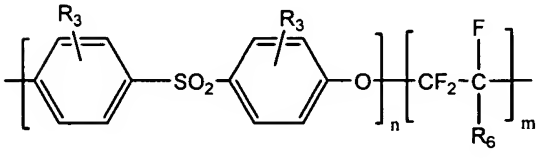
28. The polymeric conjugate of claim 27 wherein the block copolymer is selected from the group consisting of



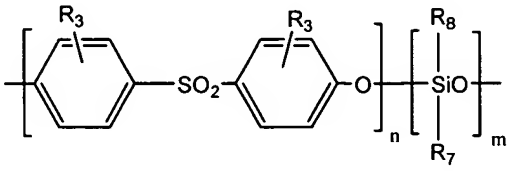
,



,

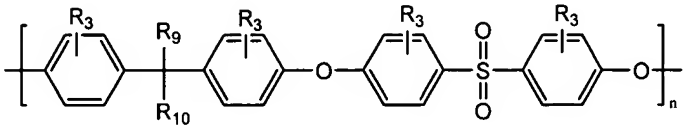


,



,

and



;

wherein R_1 is selected from the group consisting of C1 to C10 alkyl, C2, C4 and C6 hydroxyalkyl, C1 to C6 fluoroalkyl, phenyl, substituted phenyl, polyethylene glycol, polyalkylene oxide, ethylene oxide and propylene oxide;

wherein R_2, R_4, R_5, R_7 and R_8 are independently selected from the group

consisting of hydrogen, C1 to C6 alkyl, C2, C4 and C6 hydroxyalkyl, C1 to C6 fluoroalkyl, phenyl, substituted phenyl, carboxyl, amido, ester groups bearing a polyethylene glycol, and polyalkylene oxide;

wherein R_3 is selected from the group consisting of hydrogen, alkyl, cycloalkyl, phenyl, carboxyl, halo, amino, hydroxyl, amido, sulfido, and polyalkylene oxide;

wherein R_6 is a perfluoroalkyl group;

wherein R_9 and R_{10} are independently selected from the group consisting of H, CH_3, F and CF_3; and

wherein n and m are independently positive integers.

29. The polymeric conjugate of claim 28 wherein R_1 is butyl, isobutyl or isopropyl;

wherein R_2 is hydrogen or methyl;

wherein R_3 is hydrogen, halo, or methyl;

wherein R_4 and R_5 are independently hydrogen, methyl, ethyl, isopropyl, butyl, isobutyl, or phenyl;

wherein R_6 is F, CF_3, CF_2CF_3, $CF_2CF_2CF_3$, perfluoroisopropyl, perfluorobutyl or perfluoroisobutyl; and

wherein R_7 and R_8 are independently methyl, ethyl, propyl, isopropyl, butyl, or isobutyl group.

30. The polymeric conjugate of claim 28 wherein R_1 is butyl;

wherein R_2 is methyl;

wherein R_3 is hydrogen;

wherein R_4 and R_5 are methyl groups;

wherein R_6 is CF_3;

wherein R_7 and R_8 are methyl group; and

wherein R_9 and R_{10} are methyl groups.

5